

# PARALLEL FIBER OPTICS COMMUNICATIONS MODULE

## ABSTRACT OF THE DISCLOSURE

- 5 An optoelectronic subassembly for use in fiber optic communications systems where multiple parallel optical fibers are used in transmitting and receiving optical signals. The subassembly is adapted for optically connecting with a ferrule and electrically connecting to a larger computing or communications system. The ferrule supports a set of optical communications fibers disposed in an array. The subassembly supports an optoelectronic device having a set of photoactive components also disposed in an array corresponding to the fiber array. The optoelectronic device is operative for either converting photonic signals to electrical signals (in a receiver) or electrical signals to photonic signals (in a transmitter). The optoelectronic subassembly includes a carrier which is precisely fabricated using photolithography techniques for aligning and supporting the optoelectronic device and photoactive components within it. The carrier further includes a precisely positioned alignment structure for cooperating with the optical ferrule to align the photoactive components of the optoelectronic device with the fibers in the ferrule when the two are interconnected. Also, the carrier may include a thin film layer and one or more alignment marks applied to the film layer for use in accurately mounting the optoelectronic device on the carrier.
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